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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,916	11/15/2005	Shigeyuki Akimoto	034398-004	1621

21839 7590 06/19/2009  
BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER
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VANCHY JR, MICHAEL J

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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06/19/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/556,916	<b>Applicant(s)</b> AKIMOTO ET AL.	
	<b>Examiner</b> MICHAEL VANCHY JR	<b>Art Unit</b> 2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4,5,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. The 35 USC § 101 rejection made in the previous Office Action has been withdrawn thanks to Applicant's amendments.
2. Applicant's arguments filed March 12, 2009, have been fully considered but they are not persuasive.
3. The Applicant argues that the prior art of record does not teach the concept of using both the corner pattern portions and the side pattern portions so that the inspection can take place efficiently, and without the risk of the side pattern portions running past the corners and giving erroneous rejections. First, the Examiner would like to point out that the broadest interpretation of the claim language is taken, and that the Applicant's disclosure can not be read into the claims. If the Applicant does want specific limitations to be addressed, then they should be written into the claim language. That being said, taking the broadest interpretation of the claim language, Tanaka (US 6,952,492 B2) uses five patterns (four corners and the center), to use for alignment (col. 7, lines 30-40, Fig. 11), however Tanaka does not explicitly state using side patterns. Toshiba (EP 0643293 A1) uses corner and side patterns to detect defects, while moving the reference pattern based upon differential direction (Fig. 9B, the change in t).

The examiner takes into account that the prior art of record encompasses the broadest interpretation of the claim language within this application. In EP 0643293 A1, looking at Figures 9A, 9B, 10A, and 10B it is easily seen that the inspection apparatus

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teaches inspecting the outer edges (Fig. 9B "delta t"), and the outer portion of the corners as well. Therefore, it is clear that between Toshiba and Tanaka the apparatus checks corners, sides, and the center pattern, while moving each pattern (including the side pattern) to determine a more accurate comparison for defect detection (Toshiba, col. 4, lines 13-26).

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1, 4, 5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al., US 6,952,492 B2 and further in view of Toshiba et al., EP 0643293 A1.**

**Regarding claim 1**, Tanaka teaches an outer surface-inspecting method for inspecting an outer surface of an inspection area (Fig. 11, item “87”) having repeated patterns through comparison (Fig. 11, items “61” col. 7, lines 30-40) with a predetermined master pattern, said method, comprising: dividing said inspection area having a rectangular shape into a plurality of matrix-like view areas; classifying a master pattern, according to respective different edge shapes of said inspection area (Col. 7, lines 30-40, The examiner takes into account that the master pattern is the strategic locations of the four corners and center, which forms a pattern.) involving four corner pattern portions each of which is applied to a respective corner portion of the inspection area and has two perpendicular edges defining the respective corner portion and an L-shaped outer area surrounding the perpendicular edges (Fig. 11, col. 7, lines 30-40), and a central pattern portion without having an edge portion of the inspection area (Fig. 11, col. 7, lines 30-40); moving each of the side pattern portions relative to the inspection view areas along a peripheral portion of the inspection area having the repeated patterns between respective corner pattern portions, so as to be applied to respective matching inspection view areas of the peripheral portion; applying the single central pattern portion to matching of each of the inspection view areas at a central portion for the central portion surrounded by each of the peripheral portions; and inspecting the outer surface of the inspection area by comparing the standard pattern portions to the view areas corresponding to the classified standard pattern portions (col. 7, lines 30-40, The examiner clarifies that the pattern made by the four corners and center, are moved from one shot to another and thus each new shot is compared with the four corners and center pattern.).

However, Tanaka does not explicitly state using four side pattern portions each of which is applied to a respective side of the inspection area and has a straight edge portion defining a vertical edge or a horizontal edge and an outer edge portion of the straight edge portion, thus giving nine standard pattern portions including the four corners and the center patterns. Edge detection is notoriously well known in the art, as is shown in EP 0643293 A1, which uses reference patterns as a master pattern to compare or match with an inspection pattern for edges and corners (Figs. 9A, 9B, 10A

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and 10B). Combining the edge detection capability of EP 0643293 A1, into Tanaka, results in nine standard pattern portions which can be used for alignment or defect detection. It would be obvious to one of ordinary skill in the art to modify Tanaka to include edge detection, to allow for a more precise matching ability between the master pattern and an inspection area.

The examiner takes into account that the prior art of record encompasses the broadest interpretation of the claim language within this application. In EP 0643293 A1, looking at Figures 9A, 9B, 10A, and 10B it is easily seen that the inspection apparatus teaches inspecting the outer edges (Fig. 9B "delta t"), and the outer portion of the corners as well. Therefore, it is clear that between Toshiba and Tanaka the apparatus checks both the straight edges of the corners and edges and also the outside area around the edges and corners.

**Regarding claim 4**, Tanaka teaches the outer surface-inspecting method set forth in claim 1, wherein an object to be inspected is a semiconductor chip (Abstract).

**Regarding claim 5**, see the rejection made to claim 1 for it address the limitations found in claim 5, excluding said matrix-like view areas being obtained by dividing said inspection area in horizontal and vertical directions. This can be found in Figure 11 of Tanaka. Since the inspection area is a rectangle the view is inherently divided into horizontal and vertical directions. Also, since the inspection area can be used over repetitive patterns, the entire inspection area is divided into horizontal and vertical directions.

**Regarding claim 8**, Tanaka teaches the master pattern forth in claim 5, wherein an object to be inspected is a semiconductor chip (Abstract).

**Regarding claim 9**, see the rejection made to claim 1 for it addresses all the limitations of the method of this apparatus.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL VANCHY JR whose telephone number is (571)270-1193. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bhavesh M Mehta/

Supervisory Patent Examiner, Art Unit 2624

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